REMARKS

The application has been reviewed in light of the Office Action dated March 11, 2005. Claims 7-21 are pending in the application, with claims 7-11 and 13-15 having been withdrawn by the Patent Office from further consideration. Claims 1-6 were previously canceled, without prejudice or disclaimer. By this Amendment, claims 12 and 16 have been amended to clarify the claimed invention.

Claims 12, 16 and 18-21 were rejected under 35 U.S.C. §102(b) as purportedly anticipated by U.S. Patent 4,920,007 to Sawamura et al. Claims 12 and 16-21 were rejected under 35 U.S.C. §102(b) as purportedly anticipated by U.S. Patent 4,902,584 to Uchiyama et al. Claims 12, 16 and 18-21 were rejected under 35 U.S.C. §103(a) as allegedly unpatentable over U.S. Patent No. 5,156,693 to Ide et al. in view of Sawamura. Claims 12 and 16-21 were rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Ide in view of Uchiyama.

Applicant has carefully considered the Examiner's comments and the cited art, and respectfully submits that independent claims 12 and 16 are patentable over the cited art, for at least the following reasons.

This application is directed to the object of improving the overwrite characteristics of a phase variation type data recording medium. In order to achieve this object, the claimed invention of this application provides a heat-resistant protective layer comprising silicon oxide as a basic material and a compound comprising silicon nitride. The compound has a high thermal conductivity (that is, greater than or equal to 10 W/m.deg) which allows data to be stably recorded to and erased from the phase variation type data recording medium a number of times repeatedly. The thermal conductivity of the protection layer allows amorphous portions to be recorded in the phase variation type recording layer through heating followed by rapid cooling,

while protecting other portions of said recording layer from heating during the recording to the amorphous portions. That is, other than in the recorded portions, the recording layer is protected from the effects of heat in order to preserve the boundary between the recorded portions and unrecorded portions and avoid crystallization and erasure of the recorded portions. The thermal conductivity of the protection layer is a distinguishing feature of the claimed invention which is not found in the cited art. Each of independent claims 12 and 16 has further been amended to clarify this aspect of the claimed invention.

Sawamura, as understood by Applicant, is directed to a magneto-optical recording medium including a GdTbFe (or GdTbFeCo) magnetic recording layer and a protective layer for improving the durability of the magnetic recording layer. According to Sawamura, it is desirable to provide a protective layer comprising a nitride-oxide mixture which is selected to obtain a desired refractive index and an improved writing and readout efficiencies, suitable for the magnetic recording layer.

However, Applicant does not find teaching or suggestion in Sawamura of a protection layer for a phase variation type data recording medium including a phase variation type recording layer substantially constituted by Ag, In, Sb and Te, wherein the protection layer comprises SiO_2 as a basic material, and a compound having a thermal conductivity greater than or equal to 10 W/m.deg when in a bulk state, said compound comprising silicon nitride in a molar ratio with the basic material of 10% to 85% silicon nitride, and the thermal conductivity of said protection layer allows amorphous portions to be recorded in said recording layer through heating followed by rapid cooling, while protecting other portions of said recording layer from heating during said recording to said amorphous portions, as provided by the claimed invention of claim 12.

Should the Examiner disagree therewith, the Examiner is respectfully requested to cite to

the portions of the cited reference (by column number and line number) where there is basis for such disagreement.

Uchiyama, as understood by Applicant, is directed to a magneto-optical recording medium comprising a substrate, a magnetic recording layer and a protective layer (as well as other layers). According to Uchiyama, the magnetic recording layer is formed from alloys containing rare earth elements and transition metals, such as TbFeCo, GdFeCo, GdTbFeCo, etc.

Uchiyama, like Sawamura, relates to magneto-optical recording media including a magneto-optical recording layer, and are directed to the object of enhancing (i) the corrosion resistance of a recording layer and (ii) adhesion of the recording layer to a substrate. Uchiyama and Sawamura involve magneto-optical recording media wherein recording is performed via the Kerr effect or Faraday effect. Sawamura and Uchiyama contemplate balancing (a) prevention of oxidation of a recording medium with silicon nitride and (b) enhancement thereof to a substrate with silicon substrate.

In contrast, the claimed invention of this application provides a protection layer with a high thermal conductivity and thereby enables control of the heating and cooling in recording to the phase variation type recording medium.

Applicant does not find a disclosure or suggestion in Uchiyama of a protection layer for a phase variation type data recording medium including a phase variation type recording layer substantially constituted by Ag, In, Sb and Te, wherein the protection layer comprises SiO_2 as a basic material, and a compound having a thermal conductivity greater than or equal to 10 W/m.deg when in a bulk state, said compound comprising silicon nitride in a molar ratio with the basic material of 10% to 85% silicon nitride, and the thermal conductivity of said protection layer allows amorphous portions to be recorded in said recording layer through heating followed by

rapid cooling, while protecting other portions of said recording layer from heating during said recording to said amorphous portions, as provided by the claimed invention of claim 12.

Ide et al., as understood by Applicant, is directed to an optical information recording medium. Ide discloses a laundry list of alternative materials which may be used in a heat-resistance protective layer. Although Ide mentions that a mixture of the materials can be used, no guidance is provided for doing so.

As acknowledged in the Office Action, Ide does not disclose or suggest a protection layer comprising SiO_2 as a basic material, and a compound having a thermal conductivity greater than or equal to 10 W/m.deg when in a bulk state, and the compound comprising silicon nitride in a molar ratio with the basic material of 10% to 85% silicon nitride, as provided by the claimed invention of claim 12.

Further, as pointed out above, Sawamura and Uchiyama are directed to magneto-optical recording media. Therefore, one skilled in the art would not have looked to modify the optical information recording medium of Ide according to the teachings of Sawamura and Uchiyama regarding the constitution of a heat-resistance protective layer. More importantly, as also noted above, Sawamura and Uchiyama do not disclose or suggest a protection layer comprising SiO_2 as a basic material, and a compound having a thermal conductivity greater than or equal to 10 W/m.deg.

Applicant simply does not find a disclosure or suggestion in the cited art of a protection layer for a phase variation type data recording medium including a phase variation type recording layer substantially constituted by Ag, In, Sb and Te, wherein the protection layer comprises SiO_2 as a basic material, and a compound having a thermal conductivity greater than or equal to 10 W/m.deg when in a bulk state, said compound comprising silicon nitride in a molar ratio with the

basic material of 10% to 85% silicon nitride, and the thermal conductivity of said protection layer allows amorphous portions to be recorded in said recording layer through heating followed by rapid cooling, while protecting other portions of said recording layer from heating during said recording to said amorphous portions, as provided by the claimed invention of claim 12.

Independent claim 16 is patentably distinct from the cited art for at least similar reasons.

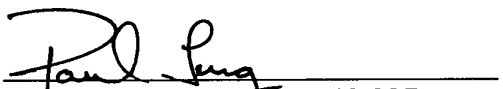
Accordingly, for at least the above-stated reasons, Applicant respectfully submits that independent claims 12 and 16, and the claims depending therefrom, are patentable over the cited art.

In view of the amendments to the claims and remarks hereinabove, Applicant submits that the application is now in condition for allowance. Accordingly, Applicant earnestly solicits the allowance of the application.

If a petition for an extension of time is required to make this response timely, this paper should be considered to be such a petition. The Office is hereby authorized to charge any fees that are required in connection with this amendment and to credit any overpayment to our Deposit Account No. 03-3125.

If a telephone interview could advance the prosecution of this application, the Examiner is respectfully requested to call the undersigned attorney.

Respectfully submitted,



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